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# ASSESSMENT OF PSYCHOLOGICAL SKILLS IN YOUNG ELITE FEMALE HANDBALL PLAYERS

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## Summary

The aim of this study was to know psychological characteristics of young elite female handball players using the C.P.R.D. questionnaire, and to establish possible differences based on years competing. The obtained results show that these young female handball players have similar psychological characteristics to other sports players. Players with more year of competitive experience showed higher scores in different psychological skills assessed. Nevertheless, only significant differences were found between more experienced players and less experienced players (years competing) in mental skills scale ( $p \leq 0,05$ ).

## Keywords

Woman handball players, C.P.R.D. questionnaire, psychological assessment, psychological skills

## Introduction

The level of demand to which they are subjected athletes is growing, making it necessary to have sufficient resources to cope with the increasing number and difficulty of sports competition. These situations test the coping resources and cognitive-behavioral resources and physiological of athletes, where the frequency and intensity of stressful stimuli leads many times to performance problems. Given these requirements, it is necessary to make a proper assessment of the resources of the athlete and the determination of "strengths" and "weaknesses" at psychological level as a key of sporting success (García, Estrany, & Cruz, 2004).

It is hoped that sports itself and previous experience contribute to the improvement of psychological skills in athletes, even when there has been no specific training of these. Following to (Martín, 2003) in an observational study of football teams which assesses psychological skills depending on the sport experience, argues that psychology skills profile belonging to the elite athletes are not innate but learned, and that most of the athletes who become experts in their sport's learned through years of practice. Later, Nicholls and Polman (2007) in a review of research on coping strategies in sport claim that athletes use a variety of strategies and that there is a greater range of the same when increasing experience sports. They mention a study by Gaudreau and Blondin (2002) where athletes ( $N=316$ ) given a test that assesses coping strategies in competitive sport, and results showed that more experienced athletes use a greater representation of mental images against the less experienced.

However, Godoy-Izquierdo, Vélez, and Pradas (2007) conclude in their study that there are no significant differences in the domain of relevant psychological skills between novice and expert athletes, obtaining lower scores in as concentration control, activation control and self-confidence. A similar study investigates the level of mastery of psychological skills of young players of table tennis, badminton and football, through CHPCDC (Psychological Skills and Behavior in Sport Competition-Children-Youth Scale) with 41 athletes ranging in age from 9 to 18 years, and determined that there are no significant differences in the variables evaluated (concentration control, activation control, visualization, motivation, etc.) with regard to the experience in sport and competition (Godoy-Izquierdo, Vélez, & Pradas, 2009). Despite the existence of previous literature that analyzes psychological skills based on the experience of

athletes, there are few studies in relation with this topic in handball. Thus, the aim of this study was to determinate psychological skills of young female handball players and compare the level of control over these skills considering their sporting experience ( $\leq 5$ ,  $>5$  years competing), using the C.P.R.D. questionnaire (Psychological Characteristics related to Sport Performance) by Spanish authors Gimeno, Buceta, and Pérez-Llantada (2001).

## **Methods**

### *Participants*

The total sample consisted of 137 young elite female handball players from 13 to 16 years ( $M=14,25$ ;  $SD=0,74$ ), which have been playing a mean of 8,66 years ( $SD=2,16$ ), and a mean of 5,10 years competing ( $SD=2,18$ ). All players competed in the highest league of their sports category, were selected as the best players of their sport category, belonged to the National Sporting Talent Program of the Royal Spanish Handball Federation, and commonly performed at least 3 training sessions per week plus one official match.

### *Assessment instrument*

As data collection instrument were used the C.P.R.D. Psychological Characteristics related to Sport Performance questionnaire by Gimeno et al. (2001). This instrument was designed for psychological assessment of performance in sport. In terms of reliability this questionnaire has shown an acceptable internal consistency (Gimeno et al., 2001), both in total questionnaire ( $\alpha=0,85$ ) and its scales: stress control (SC) ( $\alpha=0,88$ ), influence of performance evaluation (IPE) ( $\alpha=0,72$ ), motivation (M) ( $\alpha=0,67$ ) and team cohesion (TCOH) ( $\alpha=0,78$ ), with the exception of the scale of mental skills (MSK) ( $\alpha=0,34$ ). The answer of each question is graded on a 5-point Likert scale and also includes an option of response of this kind: "I do not understand".

### *Procedure*

All players and their parents were informed about the procedures of the measurements and provided their written consent for participating according to the research policy of the Royal Spanish Handball Federation. All of them completed the questionnaire individually, accompanied by a personal data sheet.

### *Data analysis*

All data are expressed as mean (SD), minimum, maximum and centiles (all data were checked for distribution normality and homogeneity with the Kolmogorov-Smirnov and Lilliefors test). Was obtained internal consistency of questionnaire scales using Cronbach's alpha. Differences in the level of psychological skills related to performance based on years competing were compared by t de Student for independent samples. Effect size was calculated by Cohen's  $d$  (Cohen, 1988). Statistical significance was set at  $p \leq 0,05$ . All analyses were done with SPSS version 17.0.

## **Results**

With our sample of female handball players, the internal consistency of the complete questionnaire was 0.75, a little bit lower punctuation that the one obtained in the original research (Gimeno et al., 2001), although it is considered acceptable according to the usual criteria (Nunally, 1978). However, were obtained internal consistency values that can be considered acceptable in each questionnaire scales.

Table 1 shows Cronbach's alpha, descriptive statistic (mean, standard deviation, maximum and minimum), and maximum obtainable score, obtained by all players ( $N=137$ ) in each scale, as well as the mean score for each scale transformed on the basis of 10 point.

**Table 1.** Cronbach's alpha, mean, standard deviation (SD), minimum, maximum, and maximum obtainable score, obtained by all the players (N= 137) in each scale, as well as the mean score of each scale transformed on the basis of 10 point.

Scales	Cronbach's $\alpha$	Mean (SD)	Min.	Max.	Max. obtainable score	Mean Score on the basis of 10 points
<b>Stress control (SC)</b>	0,625	52,96 (11,55)	1	79	80	6,62
<b>Influence of performance evaluation (IPE)</b>	0,671	29,98 (7,41)	0	44	48	6,25
<b>Motivation (M)</b>	0,704	23,83 (4,48)	0	32	32	7,45
<b>Mental skills (MSK)</b>	0,705	22,31 (4,87)	1	34	36	6,20
<b>Team cohesion (TCOH)</b>	0,768	19,09 (3,34)	0	24	24	7,95

Since there are scores with other data on different samples of practitioners of other sports, and in order to make visible where our female handball players are placed relative to other sports, table 2 presents direct punctuations (D.P.) obtained by our female handball players and their corresponding centile. This Table 2 also reflects a comparison between the centile where is situated our sample based on direct punctuations obtained in our study, with respect to C.P.R.D. normative group centile (Gimeno et al., 2001) and those obtained in other studies with samples of indoor soccer players (Lecina, Peris, & Gimeno, 2010) and gymnastics (Jaenes, Carmona, & Lopa, 2010).

It is observed that handball player score are above the ones of the original sample in all scales. With respect to indoor soccer players, handball players have the higher scores in all scales except in motivation. Finally, it is noted how handball players and gymnasts show the same centile in all scales.

**Table 2.** Comparison between the centile where is situated our sample based on direct punctuations obtained in our study, with respect to the C.P.R.D. normative group centile and those obtained in other studies with samples of indoor soccer players and gymnastics.

	<b>Direct punctuations (D.P.) and its corresponding Centile in our study</b>		<b>Centiles that our study would reach in other studies based on its direct punctuations</b>		
	<b>D.P.</b>	<b>Centile</b>	<b>Centile of the normative group (Gimeno et al., 2001)</b>	<b>Centile of indoor soccer players (Lecina et al., 2010)</b>	<b>Centile of rhythmic gymnastics (Jaenes et al., 2010)</b>
Stress control (SC)	54	50	70	59	50
Influence of performance evaluation (IPE)	30	50	75	60	50
Motivation (M)	24	50	80	45	50
Mental skills (MSK)	23	50	70	70	50
Team cohesion (TC)	20	50	65	55	50

Table 3 compare the means of the psychological variables assessed between the group who had more than 5 years competing in their sport (more experienced group), with the group who had 5 or fewer years competing. We have obtained statistically significant differences ( $p \leq 0,05$ ) between groups in mental skills scale, being the players with more than 5 years competing those with greater punctuations in this variable. The effect size for mental skills scale ( $d = -0,40$ ) is medium.

**Table 3.** Descriptive statistics and inferential based on competing experience (years competing).

Psychological variables	Years competing	N	Mean (SD)	$d^l$	$t$	$p$
Stress control (SC)	$\leq 5$	76	52,37 (12,41)	-0,11	-0,672	0,503
	$> 5$	61	53,70 (10,43)			
Influence of performance evaluation (IPE)	$\leq 5$	76	29,49 (7,64)	-0,14	-0,865	0,388
	$> 5$	61	30,59 (7,12)			
Motivation (M)	$\leq 5$	76	23,47 (4,89)	-0,18	-1,046	0,297
	$> 5$	61	24,28 (3,88)			
Mental skills (MS)	$\leq 5$	76	21,49 (5,32)	-0,40	-2,249	0,026*
	$> 5$	61	23,34 (4,05)			
Team cohesion (TC)	$\leq 5$	76	19,20 (3,51)	0,07	0,427	0,670
	$> 5$	61	18,95 (3,14)			

\* $p \leq 0,05$

<sup>l</sup>To calculate the effect size were considered deviations combined (Cohen, 1988).

## Discussion

After applying the C.P.R.D. and data analyze, it can be stated that reliability obtained for the whole questionnaire is acceptable (Cronbach's  $\alpha = 0,75$ ), comparable to that obtained in other studies (Gimeno et al., 2001; Jaenes et al., 2010).

Reliability obtained in each scale was, in general, similar to that obtained in the above studies. Our Cronbach's  $\alpha$  values are very near from those obtained in the original study (Gimeno et al., 2001). In this regard, our results were: IPE  $\alpha = 0,671$ , M  $\alpha = 0,704$ , and TCOH  $\alpha = 0,768$ , and the results of the original study were: 0,72, 0,67 and 0,78, respectively. However, in Mental skills scale, we obtained  $\alpha = 0,705$ , versus  $\alpha = 0,34$  in the above mentioned original study.

Referred to the scores of handball players compared with those obtained by other athletes using the same questionnaire, the results show that our female handball players get higher scores on all scales of the questionnaire than athletes of the research sample of Gimeno et al. (2001). Nevertheless, with respect to the sample of gymnasts analyzed by Jaenes et al. (2010) they obtained similar results. Whereas, with respect to the sample of football players analyzed by Lecina et al. (2010) were obtained mixed results, because our female handball players seem to have higher scores on all variables except on motivation.

The explanation for these results could reside in the specific characteristics of the sample evaluated by Gimeno et al. (2001) and by Lecina et al. (2010), where athletes were non-elite athletes, and also because the representation of handball players in the study of Gimeno et al. (2001) is not representative (0.6%).

Depending on the sport experience of the participants in the study ( $\leq 5$ ,  $> 5$  years competing) we found statistically significant differences in mental skills scale, obtaining more punctuation most experienced players. Although there are not statistically significant differences in other variables, higher scores are observed depending on the competitive experience, in stress control, influence

of performance evaluation and motivation except in team cohesion. Although there is an inverse relationship on team cohesion scale (the most experienced players obtained lower scores than the less experienced players), the levels obtained in team cohesion scale are high, like those reported by Sosa (2008).

These results are consistent with the assertions of Martín (2003), wherein the improvement of psychological skills were explained by the age and sport experience, though not for the motivation variable. Also are in accordance with the study of Goyen and Anshel (1998), which concluded that more experienced athletes have better concentration and are better able to regulate their negative emotions to stressful events, compared with the less experienced athletes.

According to Godoy-Izquierdo et al. (2007) experience is important because creates learning, and contributes to the acquisition of technical and tactical knowledge, as well as improves psychological skills. The practice of sport, trial and error, etc., helps to learn and assimilate knowledge. However, there are studies in which their results are not according to the stated above, (Godoy-Izquierdo et al., 2007, 2009; Sosa, 2008), and thus, which are not in line with our results, where the athletes more younger obtained higher scores on some of the studied variables than the most experienced athletes.

### **Conclusions**

The results obtained allow us to further intervene in the development of competencies based on these results, advising coaches or athletes, helping them in their training and providing global and appropriate psychological skills that enable them to cope with the growing demands with increasing their involvement in it. Besides, the C.P.R.D. questionnaire (Gimeno et al., 2001) has showed to be an useful tool to assess the domain level and psychological control skills in athletes.

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